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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/684,634	10/14/2003	Mark Hirst	200309672-1	3755

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HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER	
YAN, REN LUO	
ART UNIT	**PAPER NUMBER**
2854	
NOTIFICATION DATE	**DELIVERY MODE**
02/23/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

JERRY.SHORMA@HP.COM
mkraft@hp.com
ipa.mail@hp.com

Office Action Summary	**Application No.** 10/684,634	**Applicant(s)** HIRST ET AL.	
	Examiner Ren L. Yan	**Art Unit** 2854	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 November 2008 and 14 April 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-38 and 42-49* is/are pending in the application.

4a) Of the above claim(s) *7-30 and 42-49* is/are withdrawn from consideration.

5)☒ Claim(s) *35* is/are allowed.

6)☒ Claim(s) *2-6,31-34 and 36-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

In view of the Appeal Brief filed on 11-24-2008, PROSECUTION IS HEREBY REOPENED. The Amendment after Final filed 4/14/08 has been entered. A new Office action is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Negoro et al (5,023,667) in view of Suski (5,419,780).

The patent to Negoro et al teaches an imaging system comprising a fuser assembly that generate heat and comprises a pair of opposing platen rollers 81A and 81B supported by a housing and pressed together to form a fusing nip, and a depressurization system comprising a separator mechanism (drive motor 10, gears, cam 83, etc.) mechanically coupled to the fuser assembly and configured to separate the platen rollers, and a controller for controlling the operation of the platen rollers such that the platen rollers are pressed against each other to fix the toner image on the recording paper and are separated from each other when the printer is in a stand-by state. See Figs. 12, 13 and 16, and column 7, lines 3 through column 8, line 32 in Negoro et al for details.

However, Negoro et al do not teach the use of a thermoelectric generator adapted to thermally couple to the fuser assembly and configured to convert waste heat from the fuser assembly to electrical energy to actuate the separator mechanism to thereby separate the platen rollers.

Suski et al teach in a semiconductor integrated circuit apparatus having a heatsink 60 generates heat, a thermoelectric generator 50 coupled to the heatsink so as to convert waste heat generated by the heatsink of the semiconductor device to electrical energy to operate a cooling fan 70 motor to cool the heat-generating component so as to reduce power consumption and improve efficiency. See Figs. 1-5 and column 4, line 51 through column 6, line 26 in Suski et al for example.

It would have been obvious to those having ordinary skill in the art at the time of the invention to provide the imaging apparatus of Negoro et al with the thermoelectric generator as taught by Suski et al thermally coupled to the heat generating fuser assembly to convert the waste heat into usable electrical energy to be used to actuate the separator mechanism in order to predictably reduce energy consumption and improve operating efficiency of the imaging apparatus.

With respect to claim 6, Suski et al teach in the last paragraph in column 4 that the thermoelectric generator 50 includes a Peltier device operating in a Seebeck mode.

Claims 2-6, 31-34, 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Negoro et al(5,023,667) in view of Bass(6,624,349) and Suski(5,419,780).

With respect to claims 2-4 and 31, the patent to Negoro et al teaches an imaging system comprising a power supply configured to provide a first electrical energy having a first parameter level to operate the imaging device, a fuser assembly that generate heat and comprises a pair of opposing platen rollers 81A and 81B supported by a housing and pressed together to form a fusing nip, and a depressurization system comprising a separator mechanism (drive motor 10, gears, cam 83, etc.) mechanically coupled to the fuser assembly and configured to separate the platen rollers, and a controller for controlling the operation of the platen rollers such that the platen rollers are pressed against each other to fix the toner image on the recording paper and are separated from each other when the printer is in a stand-by state. See Figs. 12, 13 and 16, and column 7, lines 3 through column 8, line 32 in Negoro et al for details.

However, Negoro et al do not teach the use of a backup electrical energy source and a controller configured to monitor the first electrical energy level and upon detecting the first energy level is less than or substantially equal to a threshold level to cause the separator mechanism to be powered by the backup electrical energy to thereby separate the platen rollers.

Bass teaches the concept of operating an electrically powered device with dual energy sources, namely a normal electrical energy 38 for operating the electrically powered device 44 and a backup thermoelectric generator 1 for generating a second electrical energy for operating the electrically powered device 44 in case the normal source of electricity fails. Bass also teaches the use of controller 28 for monitoring the normal energy source compared to a threshold parameter level and to selectively operate the electrically powered device 44 via the second electrical energy in response to the failure of the normal electrical source 38. See Fig. 1, column 5, lines 16-23, and column 6, lines 40-48 in Bass for example.

It would have been obvious to those having ordinary skill in the art at the time of the invention to provide the imaging apparatus of Negoro et al with the backup electrical energy source to be used to actuate the fuser separator mechanism and the electrical power monitoring and power allocating control system appropriately disposed as taught by Bass in order to ensure in case there is a power failure, the backup electrical energy generated by the thermoelectric generator would actuate the fuser separator mechanism to separate the platen rollers when the imaging device is not in printing operation.

The combination of Negoro et al and Bass teaches all that is claimed except for the use of the thermoelectric generator for generating the second electrical energy from waste heat.

Suski et al teach in a semiconductor integrated circuit apparatus having a heatsink 60 generates heat, a thermoelectric generator 50 coupled to the heatsink so as to convert waste heat generated by the heatsink of the semiconductor device to electrical energy to operate a cooling fan 70 motor to cool the heat-generating component so as to reduce power consumption and improve efficiency. See Figs. 1-5 and column 4, line 51 through column 6, line 26 in Suski et al for example.

In view of the teaching of Suski et al, it would have been obvious to those having ordinary skill in the art at the time of the invention to provide the imaging apparatus of Negoro et al, as modified by Bass with a thermoelectric generator thermally coupled to the heat generating fuser assembly to convert the waste heat into usable electrical energy supplied to the backup electrical energy source 1 to be used to actuate the separator mechanism in order to predictably ensure proper operation of the separator mechanism in case of power failure and to reduce energy consumption during normal operation of the imaging apparatus.

With respect to claims 5, 32 and 33, the applied prior art teaches to alternately power the separator mechanism with electrical energy converted from waste heat upon detection of a power failure, which indicates that the threshold power level is equal to zero and the level of electrical energy converted from the waste heat is clearly greater than the level of electrical energy from the power supply during power failure.

With respect to claims 6 and 36, Suski et al teach in the last paragraph in column 4 that the thermoelectric generator 50 includes a Peltier device operating in a Seebeck mode.

With respect to claims 34 and 38, Suski teaches in Fig. 5 the first surface of the thermoelectric generator is both mechanically and thermally coupled to a housing of the semiconductor device and a second surface is also mechanically and thermally coupled to the heat source to thereby allow removal of the heat source from the apparatus. With respect to claim 37, Fig. 5 of Suski inherently shows a cold junction at the first surface of the thermoelectric generator and a hot junction at the second surface in contact with the heatsink.

Allowable Subject Matter

Claim 35 allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ren L. Yan whose telephone number is 571-272-2173. The examiner can normally be reached on 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ren L Yan/
Primary Examiner, Art Unit 2854
Feb. 9, 2009

/Judy Nguyen/
Supervisory Patent Examiner, Art Unit 2854